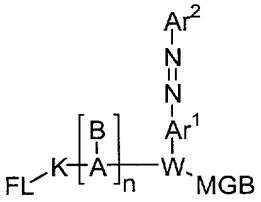
WHAT IS CLAIMED IS:

1. An oligonucleotide probe having the formula:



wherein

Ar^1 and Ar^2 are each independently a susbstituted or unsubstituted aryl group;

MGB is a minor groove binding group;

FL is a fluorescent group having an emission maxima in the region from about 400 to about 900 nm;

K is a cyclic or acyclic linking group having from 1 to 30 backbone atoms selected from C, N, O, S and P;

W is a linking group having from 3 to 100 backbone atoms selected from C, N, O, S and P, said linking group being cyclic, acyclic or a combination thereof;

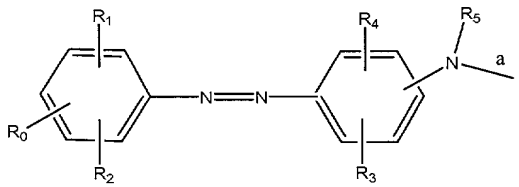
$[A\text{-}B]_n$ is a natural or modified oligonucleotide having from 4 to 100 bases; and

the subscript n is an integer of from 4 to 100.

2. An oligonucleotide probe of claim **1**, wherein Ar^1 is a substituted or unsubstituted aryl group selected from the group consisting of phenyl, naphthyl, 2-benzothiazolyl, 3-benzoisothiazolyl and 2-thiazolyl.

3. An oligonucleotide probe of claim **2**, wherein Ar^2 bears from one to three substituents selected from the group consisting of nitro, cyano, halo, $-C(O)R^1$, $-C(O)NR^1R^2$, $-SO_2R^1$, $-SO_2F$ and $-SO_2NR^1R^2$, wherein each R^1 and R^2 is independently selected from the group consisting of H, $(C_1\text{-}C_6)$alkyl and hydroxy$(C_1\text{-}C_6)$alkyl.

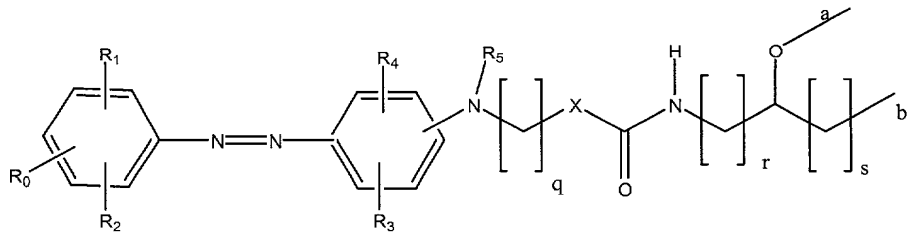
4. An oligonucleotide probe of claim **1**, wherein the group $-Ar^1\text{-}N{=}N\text{-}Ar^2$ is a quencher moiety having the formula:



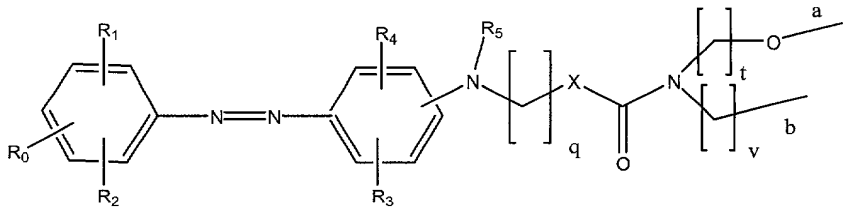
wherein

R_0, R_1, R_2, R_3 and R_4 are independently selected from the group consisting of H, halogen, NO_2, SO_3R, $SO_2N(R)_2$, C(O)OR, $C(O)N(R)_2$, CN, CNS, OR, OC(O)R, SR, CF_3, NHC(O)R, $N(R)_2$ and $N[R]_3$ wherein each R is independently selected from the group consisting of H, $(C_1\text{-}C_8)$alkyl, aryl (and heteroaryl), or a blocking group compatible with oligonucleotide synthesis; and R_5 is -H or $(C_1\text{-}C_8)$alkyl, and the quencher moiety is attached to the linker through the valence bond designated a.

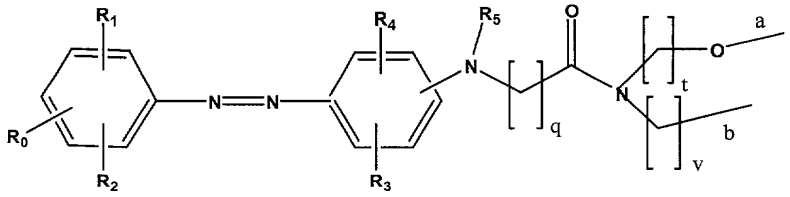
5. A compound of claim **1**, wherein the group $W\text{-}Ar^1\text{-}N{=}N\text{-}Ar^2$ is a quencher moiety-linking group combination having a formula selected from the group consisting of Q-1, Q-2 and Q-3:



Q-1



Q-2



Q-3

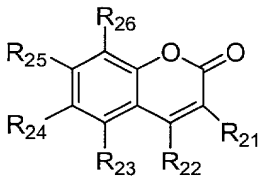
wherein

q, r, s, t and v are each independently an integer of from 1 to 20;

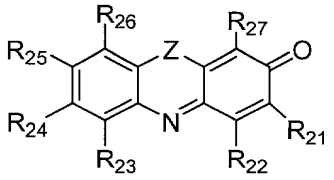
X is –O-, -OCH_2- or -CH_2-; and

the conjugated quencher and linker moiety is attached to the $[A\text{-}B]_n$ portion through one of the valence bonds designated a or b; and is attached to the minor groove binder portion through the other of valence bonds designated a or b.

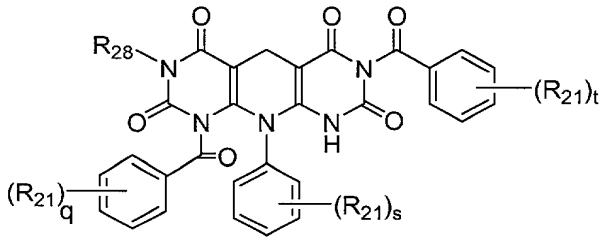
6. An oligonucleotide probe of claim **1**, wherein Fl is a fluorophore selected from the group consisting of FL-1, Fl-2 and Fl-3:



FL-1



FL-2



FL-3

wherein

R_{21}, R_{22}, R_{23}, R_{24}, R_{25}, R_{26} and R_{27} are each substituents independently selected from the group consisting of H, halogen, NO_2, SO_3R, $SO_2N(R)_2$, C(O)OR, $C(O)N(R)_2$, CN, CNS, OR, OC(O)R, SR, CF_3, NHC(O)R, $N(R)_2$ and $N[R]_3$ wherein each R is independently selected from the group consisting of H, (C_1-C_8)alkyl, aryl (and heteroaryl), or a blocking group compatible with oligonucleotide synthesis, and optionally two adjacent groups from R_{21} through R_{26} are combined to form a five- or six-membered ring having from zero to three heteroatoms as ring member, with the proviso that at least one of R_{21} through R_{27} is a bond that attaches said fluorophore to said linking group K; and

R_{28} is a member selected from the group consisting of H and (C_1-C_8)alkyl.

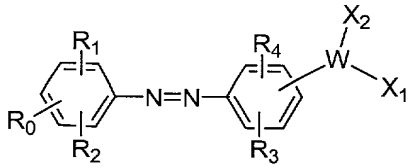
7. An oligonucleotide probe of claim **1**, wherein Fl is a fluorophore of formula FL-1.

8. An oligonucleotide probe of claim **1**, wherein Fl is a fluorophore of formula FL-2.

9. An oligonucleotide probe of claim **1**, wherein Fl is a fluorophore of formula FL-3.

10. An oligonucleotide probe of claim **1**, wherein MGB is a minor groove binder selected from the group consisting of analogs of CC1065, Hoeschst 33258, DAPI, lexitropsins, distamycin, netropsin, berenil (and related diarylamidines), duocarmycin, pentamidine, 4,6-diamino-2-phenylindole, and pyrrolo[2,1-c][1,4]benzodiazepines.

11. A quencher-phosphoramidite reagent having the formula:



wherein

W is a linking group;

X_1 is selected from the group consisting of H, $(C_1\text{-}C_{12})$alkyl, aryl, heteroaryl and a protected or unprotected functional group;

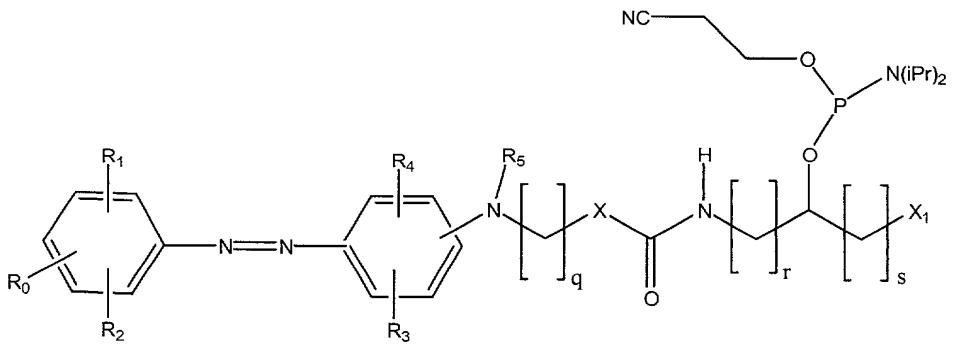
X_2 is a phosphorus coupling moiety; and

R_0, R_1, R_2, R_3 and R_4 are independently selected from the group consisting of H, halogen, NO_2, SO_3R, $SO_2N(R)_2$, C(O)OR, $C(O)N(R)_2$, CN, CNS, OR, OC(O)R, SR, CF_3, NHC(O)R, $N(R)_2$ or $N[R]_3$ wherein each R is independently H, $(C_1\text{-}C_8)$alkyl, aryl (and heteroaryl), or a blocking group compatible with oligonucleotide synthesis; and optionally, two of R_0, R_1 and R_2 are combined to form a five- or six-membered ring having from one to three heteroatoms as ring members; and optionally R_3 and R_4 are combined to form a five- or six-membered ring having from one to three heteroatoms as ring members.

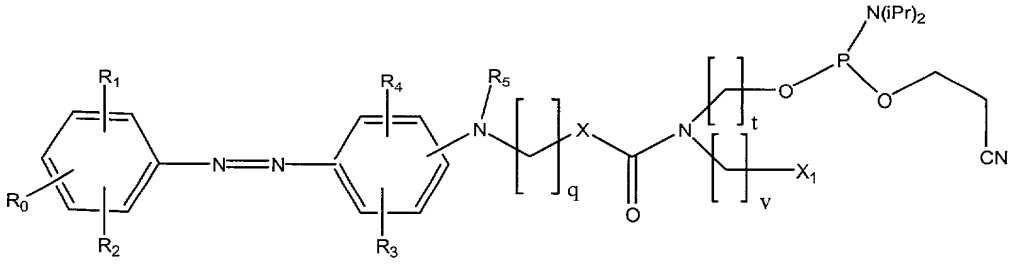
12. A quencher-phosphoramidite reagent of claim **11**, wherein R_0, R_1 and R_2 are independently selected from the group consisting of H, halogen, NO_2, SO_3R, $SO_2N(R)_2$, C(O)OR, $C(O)N(R)_2$, CN, CNS and CF_3, wherein each R is independently H, $(C_1\text{-}C_8)$alkyl or aryl; and R_3 and R_4 are independently selected from the group consisting of H,

OR, OC(O)R, SR, NHC(O)R, $N(R)_2$ or $N[R]_3$ wherein each R is independently H, (C_1-C_8)alkyl or aryl.

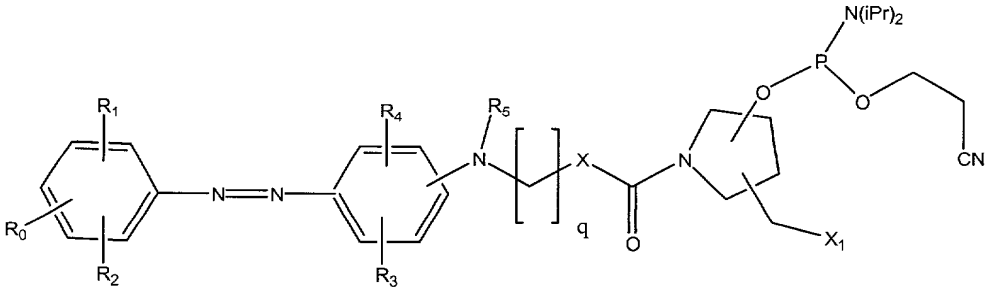
13. A quencher-phosphoramidite reagent of claim **11**, having the formula selected from the group consisting of the formulas designated PA-1, PA-2 and PA-3



PA-1



PA-2



PA-3

wherein

R_0, R_1, R_2, R_3 and R_4 are each independently selected from the group consisting of -H, halogen, NO_2, SO_3R, $SO_2N(R)_2$, C(O)OR, C(O)$N(R)_2$, CN, CNS, OR, OC(O)R, SR, CF_3, NHC(O)R, $N(R)_2$ or $N[R]_3$ wherein each R is independently H, (C_1-C_8)alkyl, aryl (and heteroaryl), or a blocking group

compatible with oligonucleotide synthesis; and optionally, two of R_0, R_1 and R_2 are combined to form a five- or six-membered ring having from zero to three heteroatoms as ring members; and optionally R_3 and R_4 are combined to form a five- or six-membered ring having from zero to three heteroatoms as ring members;

R_5 is selected from the group consisting of -H or -(C_1-C_8)alkyl;

the subscripts q, r, s, t and v are each independently an integer of from 1 to 20;

X is –O- or -CH_2-; and

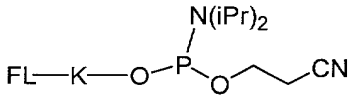
X_1 is selected from the group consisting of OH, O-dimethoxytrityl, O-methoxytrityl, O-trityl or an oxygen atom having an acid labile blocking group.

14. A quencher-phosphoramidite reagent of claim **13**, having the formula PA-1.

15. A quencher-phosphoramidite reagent of claim **13**, having the formula PA-2.

16. A quencher-phosphoramidite reagent of claim **13**, having the formula PA-3.

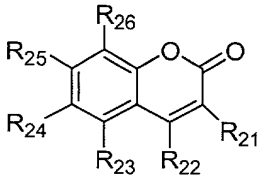
17. A fluorophore-phosphoramidite reagent having the formula:



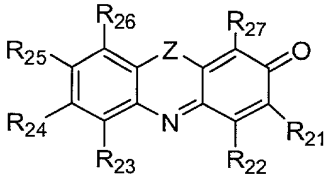
wherein

K is a bifunctional linking group; and

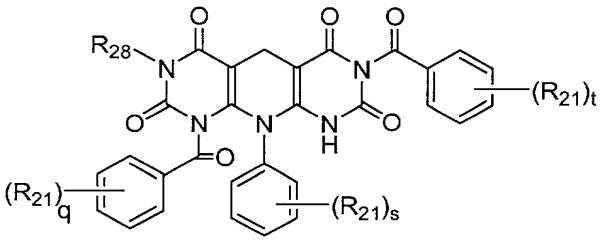
FL is a fluorophore selected from the group consisting of:



FL-1



FL-2



FL-3

wherein

R_{21}, R_{22}, R_{23}, R_{24}, R_{25}, R_{26} and R_{27} are each substituents independently selected from the group consisting of H, halogen, NO_2, SO_3R, $SO_2N(R)_2$, C(O)OR, $C(O)N(R)_2$, CN, CNS, OR, OC(O)R, SR, CF_3, NHC(O)R, $N(R)_2$ and $N[R]_3$ wherein each R is independently selected from the group consisting of H, (C_1-C_8)alkyl, aryl (and heteroaryl), or a blocking group compatible with oligonucleotide synthesis, and optionally two adjacent groups from R_{21} through R_{26} are combined to form a five- or six-membered ring having from zero to three heteroatoms as ring member, with the proviso that at least one of R_{21} through R_{27} is a bond that attaches said fluorophore to said linking group K;

the subscripts q, s and t are integers of from 0 to 5; and

R_{28} is a member selected from the group consisting of H and (C_1-C_8)alkyl.

18. A fluorophore-phosphoramidite reagent of claim **17**, wherein Fl is a fluorophore of formula FL-1.

19. A fluorophore-phosphoramidite reagent of claim **17**, wherein Fl is a fluorophore of formula FL-2.

20. A fluorophore-phosphoramidite reagent of claim **17**, wherein Fl is a fluorophore of formula FL-3.

21. A method for hybridizing nucleic acids comprising:

a) incubating a first oligonucleotide with an oligonucleotide probe; and

b) identifying a hybridized nucleic acid;

wherein said oligonucleotide probe is a probe according to claim 1.

22. A method in accordance with claim **21**, wherein said oligonucleotide probe comprises a fluorophore selected from the group consisting of FL-1, FL-2 and FL-3.

23. A method in accordance with claim **21**, further comprising the step of altering the spatial relationship between the fluorophore and quencher portions of said oligonucleotide probe.

24. A method in accordance with claim **23**, wherein said altering is a result of hybridization.

25. A method in accordance with claim **21**, wherein said method further comprises releasing the fluorophore from the oligonucleotide probe subsequent to hybridization.